

and immunity not well established. Whether some recovered cases may remain carriers, deserves further investigation. Such diagnoses are mainly dependent on exposure to insect bites in known infected areas, skin-rash and fever, and the Weil-Felix agglutination reaction with *B. proteus* strain antigen OXK. The case mortality may reach as high as thirty per cent.

Obviously, the prevention of this disease offers many difficulties under military field conditions of modern warfare, but the control of rodents and their accompanying insects is a world-wide problem, and must be given more diligent attention by public health officials everywhere. Once a disease, capable of being transmitted to man, is established in rodents in any community, all known control measures are mandatory, and continuity of these measures should never be broken.

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GRANULOCYTOPENIA: A CASE CAUSED BY THIOURACIL

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WHEN a new drug is being evaluated, we believe that the toxic reactions encountered in its use should be made known. For that reason, we are reporting an instance of marked granulocytopenia caused by thiouracil.

REPORT OF CASE

A colored male, aged 40, entered Highland-Alameda County Hospital on February 2, presenting the classical symptoms and findings of a diffuse toxic goitre with exophthalmos. The initial laboratory findings revealed a basal metabolic rate of plus 40, serum cholesterol of 140 mgm. per 100 c.c., normal white and differential blood counts, and negative x-rays of the chest and soft tissues of the neck.

On February 16th, the patient was placed on thiouracil, .2 grams every eight hours. By March 28th, the patient had gained 15 pounds in weight, the basal metabolic rate had decreased to plus 13, and the serum cholesterol had increased to 190 mgm. per 100 c.c. There was a noticeable decrease in the exophthalmos. However, there had not been a corresponding decrease in the nervous symptoms, and for that reason the dosage of thiouracil was increased to .4 grams every eight hours, on March 29th. Between April 6th and April 11th our supply of thiouracil became exhausted, and subsequently the dosage of .4 grams every eight hours was resumed on April 12th.

On April 16th, after having received 40.8 grams of thiouracil in 55 days, the patient experienced a severe

chill, the onset of a severe sore throat and a temperature rise to 104° F. He appeared acutely ill, the throat was red and edematous, and the gums appeared pale and contained patches of pseudomembrane. There was a moderate cervical adenitis. A white blood count showed 2,000 cells, with 19 per cent segmented forms, 3 per cent juveniles, and 71 per cent lymphocytes. One week previously the white blood count had been normal. For the next 6 days, the patient appeared toxic and ran a swinging temperature between 101° F. and 104° F. His total white blood count remained at 2,000, but the differential count decreased to 1 per cent segmented forms, 6 per cent stab forms, 3 per cent juveniles, and 90 per cent lymphocytes.

Therapy consisted of discontinuing the thiouracil, isolating the patient from exogenous infection, atraumatic oral care with normal saline mouth washes, a high vitamin C intake and 10 c.c. of pentnucleotide intramuscularly four times daily. However, after each of three injections of pentnucleotide, the patient experienced such severe nausea, vomiting, and chills that the pentnucleotide was discontinued. Liver extract, 5 c.c. intramuscularly, was given twice daily, and in addition sulfadiazine was given orally. Ten days after the onset of the granulocytopenia the white blood count and the differential count had returned to normal.

DISCUSSION

Astwood¹ has reported an instance of agranulocytosis developing from the use of thiouracil in a dosage varying from 1-2 grams daily over a period of 36 days. Gabrilove and Kert,² and Palmer,³ have noted instances in their series of cases in which the total white cell count has been depressed although there was no depression in the percentage differential count.

CONCLUSION

Thiouracil, a new drug in the treatment and preoperative preparation of hyperthyroid patients, is capable of producing marked granulocytopenia and even agranulocytosis.

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Public Spends Too Much on Vitamins

The American people are spending too much on vitamins, Dr. Herman L. Kretschmer of Chicago, new president of the American Medical Association, declared on June 13, 1944.

He said the estimates are that Americans this year will spend about \$250,000,000 for vitamins.

"I do not wish," he declared, "to discredit the enormous progress that has been made in this field. Certainly the people of this country are not in such a state of malnutrition as to require the use of \$250,000,000 worth of vitamins.

"The excessive claims made for vitamins are beyond any basic evidence. One is impressed by the close parallelism to the 'patent medicine' advertisements of 25 years ago."

* From the Highland-Alameda County Hospital.